

Distribution of light intensity in multi-branches waveguides of 2DPC

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We fabricated two different types of 2DPC waveguides, one is two-branch with Y-type, and another the four-branch. For the two-branch waveguides, we intended to determine the shortest interval between the branches where the inter-coupling is negligible. The waveguides with an air-bridge structure were fabricated by FIB lithography and selective wet etching on SOI wafer. We demonstrated three Y-type two-branch waveguides, which have 9, 7 and 5 rows intervals between two straights waveguides, respectively. Both the experimental and theoretical results show that the minimum interval of waveguide is 1.4 times of transmitted wavelength. If the interval is smaller, the light in the two branches will couple to each other seriously. This would be helpful to the design of compact wave demultiplexer and all-optical integrated circuits.